USER MANUAL

TG2480HII



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UNLESS OTHERWISE SPECIFIED, THE INFORMATION GIVEN IN THIS MANUAL

ARE REFERRED TO ALL MODELS IN PRODUCTION AT THE ISSUE DATE OF THIS DOCUMENT.

GENERAL INSTRUCTIONS

CUSTOM S.p.A. declines all responsibility for accidents or damage to persons or property occurring as a result of tampering, structural or functional modifications, unsuitable or incorrect installations, environments not in keeping with the equipment's protection degree or with the required temperature and humidity conditions, failure to carry out maintenance and periodical inspections and poor repair work.

GENERAL SAFETY INFORMATION

Your attention is drawn to the following actions that could compromise the characteristics of the product:

- · Read and retain the instructions which follow.
- Follow all indications and instructions given on the device.
- Make sure that the surface on which the device rests is stable. If it is not, the device could fall, seriously damaging it.
- Make sure that the device rests on a hard (nonpadded) surface and that there is sufficient ventilation.
- Do not fix indissolubly the device or its accessories such as power supplies unless specifically provided in this manual.
- When positioning the device, make sure cables do not get damaged.
- [Only OEM equipment] The equipment must be installed in a kiosk or system that provides mechanical, electrical and fire protection.
- The mains power supply must comply with the rules in force in the Country where you intend to install the equipment.
- Make sure that there is an easily-accessible outlet with a capacity of no less than 10A closely to where the device is to be installed.
- Make sure the power cable provided with the appliance, or that you intend to use is suitable with the wall socket available in the system.
- Make sure the electrical system that supplies power to the device is equipped with a ground wire and is protected by a differential switch.
- Before any type of work is done on the machine, disconnect the power supply.
- Use the type of electrical power supply indicated on the device label.
- These devices are intended to be powered by a separately certified power module having an SELV, non-energy hazardous output. (IEC60950-1 second edition).
- [Only POS equipment] The energy to the equipment must be provided by power supply approved by CUSTOM S.p.A.
- Take care the operating temperature range of equipment and its ancillary components.
- Do not block the ventilation openings.
- Do not insert objects inside the device as this could cause short-circuiting or damage components that could jeopardize printer functioning.
- Do not carry out repairs on the device yourself, except for the normal maintenance operations given in the user manual.
- The equipment must be accessible on these components only to trained, authorized personnel.
- Periodically perform scheduled maintenance on the device to avoid dirt build-up that could compromise the correct, safe operation of the unit.
- Do not touch the head heating line with bare hands or metal objects. Do not perform any operation inside the printer immediately after printing because the head and motor tend to become very hot.
- · Use consumables approved by CUSTOM S.p.A.

THE CE MARK AFFIXED TO THE PRODUCT CERTIFY THAT THE PRODUCT SATISFIES THE BA-SIC SAFETY REQUIREMENTS.

The device is in conformity with the essential Electromagnetic Compatibility and Electric Safety requirements laid down in Directives 2014/30/EU and 2014/35/EU inasmuch as it was designed in conformity with the provisions laid down in the following Standards:

- EN 55032 (Limits and methods of measurements of radio disturbance characteristics of Information Technology Equipment)
- EN 55024 (Information Technology Equipment – Immunity characteristics – Limits and methods of measurement)
- EN 60950-1 (Safety of information equipment including electrical business equipment)

The device is in conformity with the essential requirements laid down in Directives 2014/53/EU about devices equipped with intentional radiators The Declaration of Conformity and other available certifications can be downloaded from the site www.custom4u.it.



GUIDELINES FOR THE DISPOSAL OF THE PRODUCT

The crossed-out rubbish bin logo means that used electrical and electronic products shall NOT be mixed with unsorted municipal waste. For more detailed information about recycling of this product, refer to the instructions of your country for the disposal of these products.

- Do not dispose of this equipment as miscellaneous solid municipal waste, but arrange to have it collected separately.
- The re-use or correct recycling of the electronic and electrical equipment (EEE) is important in order to protect the environment and the wellbeing of humans.
- In accordance with European Directive WEEE 2002/96/EC, special collection points are available to which to deliver waste electrical and electronic equipment and the equipment can also be handed over to a distributor at the moment of purchasing a new equivalent type.
- The public administration and producers of electrical and electronic equipment are involved in facilitating the processes of the re-use and recovery of waste electrical and electronic equipment through the organisation of collection activities and the use of appropriate planning arrangements.
- Unauthorised disposal of waste electrical and electronic equipment is punishable by law with the appropriate penalties.





For details on the commands, refer to the manual with code **7720000005200**

For further information about the use of "PrinterSet" tool refer to the manual with code **7820000001800**

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1 INTRODUCTION

This document is divided into sections and chapters. Each chapter can be reached by the index at the beginning of this document. The index can be reached by the button on each page as shown in the diagram below.







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2 DESCRIPTION

2.1 Box contents

Remove the device from its carton being careful not to damage the packing material so that it may be re-used if the device is to be transported in the future.

Make sure that all the components illustrated below are present and that there are no signs of damage. If there are, contact customer service

- 1. Power supply cable
- 2. Paper roll holder fixing screw (x2)
- 3. Documentation (installation instruction sheet)
- 4. Cable tie (x2)
- 5. Device
- 6. Paper roll holder



2.2 Device components

- 1. Paper width adjustment
- 2. Paper roll holder pin
- 3. Low paper sensor
- 4. Lever for paper stock adjustment
- 5. Paper roll holder
- 6. Printing head
- 7. Autocutter group
- 8. Sensor for early withdrawal of the ticket
- 9. Inspection door
- 10. Paper out
- 11. Unlocking hook for autocutter group
- 12. Device chassis

- 13. USB port
- 14. Status LED
- 15. Power supply port
- 16. Serial port
- 17. Paper in
- 18. Paper in presence and black mark sensor
- 19. Rear cover
- 20. Paper jam sensor
- 21. FEED key
- 22. PRINT key
- 23. Unlocking lever for platen roller
- 24. Platen roller manual feed



2.3 Product label

- PC = Product code (14 digits)
- SN = Serial number
- HW = Hardware release





2.4 Key functions: power up

The following figure shows the functions of device's keys according to the operating condition.





2.5 Key functions: standby

The following figure shows the functions of device's keys according to the operating condition.



2.6 Status messages

The status LED indicates hardware status of device. Given in the table below are the various LED signals and the corresponding device status.

STATUS LED		DESCRIPTION
-	OFF	DEVICE OFF
GREEN	ON	DEVICE ON: NO ERROR
	x 1	RECEIVE DATA
	x 2	PRINTHEAD OVERHEATED
	x 3	PAPER END
	x 4	POWER SUPPLY VOLTAGE INCORRECT
GREEN COMMUNICATION	x 5	RECEPTION ERROR (PARITY, FRAME ERROR, OVERRUN ERROR)
STATUS	x 6	COMMAND NOT RECOGNIZED
	x 7	COMMAND RECEPTION TIME OUT
	x 8	INSPECTION DOOR OPEN
	x 9	PAPER JAM
	x 10	LOW PAPER
GREEN UNRECOVERABLE ERROR	x 11	AUTOCUTTER ERROR



3 INSTALLATION

3.1 Panel fastening

The device is provided with three fixing holes on the bottom of device (see following figure). To fasten the device on a panel, use three M3 screws (not included).

All the dimensions shown in the following figure are in millimetres.



WARNING:

In order to allow the anti-jamming system to operate properly, the device must be mounted on a perfectly horizontal plan.



3.2 Paper roll holder assembly

The paper roll holder position is adjustable on four different positions: upper position P1, rotated upward P2, rear P3, rotated downward P4.

Fix the paper roll holder to the device holes shown in figure according to the desired position by using the two M4x6 fixing screws supplied with the device.







ATTENTION: While assembly the paper roll holder check the cable path (low paper sensor) is correct. Incorrect positions of the cable could cause damage on it.



3.3 Connections

The following figure shows the possible connections for the device. When the RS232 and USB communication cables are connected to the device at the same time, the communication take place via the USB port.



ATTENTION: In some using conditions, we recommend the installation of a ferrite core on the power supply cable.



3.4 Pinout



POWER SUPPLY

Male Molex connector series 5569 vertical (n° 39-30-1020)



ATTENTION:

Respect power supply polarity.

NOTE: Power supply cable

The following figure shows the connector pinout of the power supply cable for the device:





USB INTERFACE Female USB type B connector

J1	1	USB0_VBUS	(in)
	2	USB0_D-	(in/out)
	3	USB0_D+	(in/out)
	4	GND	
	SH1	SHIELD	
	SH2	SHIELD	



SERIAL INTERFACE Female RJ45 connector

	1	n.c.		
	2	GND		
	3	ТХ	(out)	During transmission, takes the values -VRS232 and +VRS232 depending on data
	4	RX	(in)	During reception, takes the values -VRS232 and +VRS232 depending on data
J2	5	RT	(out)	When +VRS232, device is ready to receive data
	6	n.c.		
	7	n.c.		
	8	n.c.		

NOTES:

Given the presence of the RS232 standard, logic value "0" corresponds to the voltage value +VRS232 (voltage value between +3Vdc and +15Vdc) and logic value "1" corresponds to the voltage value -VRS232 (voltage value between -3Vdc and -15Vdc.

DEVICE > PC connection

The following picture shows an example of connection between the device and a personal computer using an 8 pin serial RJ45 male connector and a 9 pin female connector.



When use a serial cable, we recommend the installation of a ferrite core on the power supply cable.



3.5 Driver and SDK

OPERATING SYSTEM	DESCRIPTION	INSTALLATION PROCEDURE		
	Driver for Windows XP			
	Driver for Windows VISTA (32/64 bit)			
	Driver for Windows 7 (32/64 bit)	From the Start menu, press Run and type-in the path where the SW was saved on PC, then click OK. Follow the instructions on the screen to install the driver.		
	Driver for Windows 8 (32/64 bit)			
Windows	Driver for Windows 8.1 (32/64 bit)			
	Driver for Windows 10 (32/64 bit)			
	Self-installing driver for Virtual COM (32/64 bit) (see paragraph 5.4)			
	JavaPos library			
Linux	32/64 bit	Follow the instruction get back on the		
LIIIUX	JavaPos library	software package downloaded in advance.		

In the website <u>www.custom4u.it</u> are available the drivers for the following operating system:



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4 OPERATION

4.1 Device opening

















4.3 Adjusting paper width

The device allows the use of paper roll width from 76 mm to 80 mm.

Properly set the value of the "Paper Width" parameter during the setup procedure (see paragraph 5.5). To adjust the width of the paper roll case, rotate the knob as shown in the following figure.



4.4 Adjusting paper stock

The device allows the move the position of the low paper sensor to adjust the amount of paper on the roll under which report the low paper.

Use the lever shown in figure to move the low paper sensor: move the lever up to increase the paper stock, move the lever down to decrease the paper stock.







4.6 Loading the paper roll

To change the paper proceed as follows. At every change of paper, check inside the device.







4.7 Anti-jamming system

The withdrawal of the ticket before the end of printing, may damage the printing mechanism or the paper ripping resulting in probable jam.

The device is equipped with an anti-jamming system that starts operating when the user tries to pick up the ticket while printing is still in progress.

This system is composed of a tilting plane placed under the inspection door and of a fork sensor that detects the movements of the tilting plane.

The user that make a ticket withdrawal before the printing end, causes the tension of the paper resulting in the lowering of the tilting plane. This movement engages the fork sensor: printing is interrupted and the ticket is cut instantly.





5 CONFIGURATION

5.1 Configuration by keys

To enter the configuration mode and print a setup report with the operating parameters of the device, proceed as follows.



The following figure shows the setup report of the device. The shown values for parameters are sample values; for the list and the description of device parameters see the following paragraphs.




5.2 Configuration by software

The setup parameters can be set by using the "PrinterSet" software tool available on <u>www.custom4u.it</u>. For a detailed description of the device operating parameters see the following paragraphs. To configure the device by software, proceed as follows:





Click on SETUP to access the operating parameteres of the device to be configured.

			}
٨D	SAVE	PORT	🗙 extra
	<parameter></parameter>	Disabled	× >
	<parameter></parameter>	Enabled	47.
s>	<parameter></parameter>	Enabled	• Zys
>	<parameter></parameter>	Disabled	•
>	<parameter></parameter>	Enabled	•
	<parameter></parameter>	0	•
/ 	Parameter>	Disabled	

Make the desired changes to the device operating parameters.

SAVE PORT ┛ 1 SETUP Enabled To File Info Enabled <Parameters> Disabled <Parameter> Disabled <Parameter> <Parameters> Enabled <Parameter> <Parameters> 2 <Parameter> <Parameters> SParamators Ricabl

> Click on SAVE > TO DEVICE to make the changes made effective.

ATTENTION:

During saving, it is strongly discouraged to disconnect the communication cable or to remove the power supply of the PC or the device.

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5.3 Device status

The device operating status is indicated in the configuration print-out in which, next to the name of the components displayed, the following information is given:

PRINTER TYPE	device model
INTERFACE	interface present
PROGRAM MEMORY TEST	OK appears if functioning and NOT OK if faulty
DYNAMIC RAM TEST	OK appears if functioning and NOT OK if faulty
CUTTER TEST	OK appears if functioning and NOT OK if faulty
HEAD VOLTAGE	voltage of the head
HEAD TEMPERATURE	temperature of the head
POWER ON COUNTER	number of power-ups made
PAPER PRINTED	centimetres of paper printed
CUT COUNTER	number of cuts made
LED bar FGND (RRGGBB)	foreground colour set for the status LED on the bezel
LED bar BGND (RRGGBB)	background colour set for the status LED on the bezel
PWM BLACK MARK AVG.	average value of the PWM of the alignment sensor
PWM BLACK MARK WHITE	value of the PWM for the white color of the alignment sensor
PWM BLACK MARK BLACK	value of the PWM for the black color of the alignment sensor



5.4 Communication parameters

The device allows the configuration of the parameters listed in the following table. The parameters marked with the symbol ^D are the default values. Settings remain active even after the device has been turned off and they are stored in non-volatile memory.

RS232 BAUD RATE	Communication speed of the serial interface:					
	9600		5760	0		
	19200 38400		1152	00 0		
	30400					
	This par	amete	r is vali	d only wi	h serial i	nterface.
RS232 DATA LENGTH	Number of bit used for characters encoding:					
	7 bits/ca	ar 🛛				
	8 bits/ca	ir ^D				
	This par	amete	r is vali	d only wi	h serial i	nterface.
RS232 PARITY Bit for the p			y contr	ol of the	serial inte	erface:
	None D =	=	parity	/ bit omitte	ed	
	Even = Odd =		even	value for	parity bit	t
	ouu		ouu			
	This par	amete	r is vali	d only wi	h serial i	nterface.
RS232 HANDSHAKING	Handsha	aking:				
	XON/XOFF = software handshaking Hardware D = hardware handshaking (CTS/RTS)					
	This parameter is valid only with serial interface.					
	NOTE					
	When t	he rec	eive bu	uffer is ful	I, if hand	Ishaking is set to XON/XOFF, the device sends
	the XOI handsh	FF (0x aking i	13) on s set to	the serial XON/XC	port. Wh DFF, the o	hen the receive buffer has cleared once again, if device sends the XON (0x11) on the serial port.
BUSY CONDITION	Activatio	on moc	le for B	usy signa	ıl:	
	OffLine/	RXFu	ll = Bus	sy signal i	s activate	ed when the device is both in OffLine status and
			the	buffer is t	full	ad when the buffer is full
	RAFUI	~ =	Bus	sy signal i	s activate	ed when the buller is full
	This par	amete	r is vali	d only wi	h serial i	nterface.
USB ADDRESS NUMBER	Numeric than a L	al add: JSB de	ress co vice co	de for the	univocal with the s	I identification of the USB device (in case of more same PC):
	0 D	2	4	6	8	
	1	3	5	7	9	



USB communication class definition.

Printer ^D = setting the printer function Virtual COM = setting the USB port as a virtual serial port •

5.5 Operating parameters

The device allows the configuration of the parameters listed in the following table. The parameters marked with the symbol ^D are the default values. Settings remain active even after the device has been turned off and they are stored in non-volatile memory.

PRINTER EMULATION	Available emulations for the device:
	TGH ^D CUSTOM/POS
PRINT MODE	Printing mode:
	Normal D =enables printing in normal writing wayReverse =enables printing rotated 180 degrees
AUTOFEED	Setting of the Carriage Return character:
	CR disabled ^D = Carriage Return disabled CR enabled = Carriage Return enabled
CHARS / INCH	Font selection:
	A = 11 cpi, B = 15 cpi ^D A = 15 cpi, B = 20 cpi A = 20 cpi, B = 25 cpi
	NOTE: CPI = Characters Per Inch.
FONT TYPE	Setting of the font type:
	International D=Enables the use of the 256 characters font tablesChinese GB18030=Enables the use of the chinese extended font GB18030-2000Korean CP949=Enables the use of the korean font CP949
	When the "International" font is enabled, you need to choose the character code table (parameter "Code Table"). When the Chinese font is enabled, the selection of the character code table is suspended (parameter "Code Table").
CODE TABLE	Identifier number of the character code table to use.
	See paragraph 8.6 to learn about the character tables corresponding to the identification numbers set with this parameter. The character tables set with this parameter are the same set with the command 0x1B 0x74 (refer to the commands manual of the device).
TEAR AUTO CUT	Management of autocut function:
	Disabled Enabled ^D



SPEED / QUALITY	Setting of printing speed and printing quality:
	Normal ^D High Speed
PRINT WIDTH	Width of printing area:
	76 mm ^D 80 mm
PAPER THRESHOLD	Threshold value (in percent) for the recognition of the presence of paper by the paper presence sensor:
	30% 60% 90% 40% D 70% 50% 80%
PAPEREND BUFFER CLEAR	Cleaning mode of the data in receive buffer, if the printing is stopped due to lack of paper:
	Disabled ^D = the data remain in the receive buffer. When the paper runs out, the device keeps the remaining data in the receive buffer and prints the remaining
	Enabled = when the paper runs out, all data in the receive buffer are deleted.
LOW ENERGY MODE	Setting the inactivity period in seconds after which the device enters in sleep mode:
	Disabled ^D 15 s
	30 s 60 s
LED bar FGND (RRGGBB)	Set the foreground color for the status LED on the bezel. This parameter consists in three value for red, green and blue color to be expressed in hexadecimal:
	RR = from 00 ^D to FF GG = from 00 to FF ^D
	$BB = \text{ from } 00^{\text{ D}} \text{ to FF}$
LED bar BGND (RRGGBB)	Set the background color for the status LED on the bezel. This parameter consists in three value for red, green and blue color to be expressed in hexadecimal:
	$RR = from 00 \text{ to } FF (8F^{D})$ $GG = from 00^{D} \text{ to } F$ $BB = from 00 \text{ to } FF^{D}$
PRINT DENSITY	Adjusting the printing density:
	-25% 0 ^D +25% -12% +12%
	NOTE: The print quality is strongly influenced by the type of chemical treatment and the type of storage to which the thermal paper has been subjected, as well as by the weight of the same. It may therefore necessary to act on this parameter to obtain the desired print quality.

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5.6 Alignment parameters

This printer allows the configuration of the parameters listed in the following table. The parameters marked with the symbol ^D are the default values. Settings remain active even after the printer has been turned off and they are stored in non-volatile memory.

BLACK MARK POSITION	Management of the paper alignment:									
	Disabled ^D = Enabled =	the the	e black r e black r	nark alignment nark alignment	is not p is perfo	erforme ormed	ed			
BLACK MARK SENSOR	Choice of the black mark alignment sensor:									
	Internal ^D = Esternal =	the I the I	black ma black ma	rk position is c rk position is c	letected letected	by the by the	printing paper in	mechani iput sens	sm senso or	r
BLACK MARK THRESHOLD	Threshold value (in percent) for the recognition of the presence of black mark by the black mark sensor:									
	30% ^D 40% 50% 60%	70% 80% 90%								
BLACK MARK DISTANCE	"Black Mark of ticket and The numeric setting of thr and of the si	Distan the bla value ee digi gn:	ce" is the ack mark of the di ts (two fo	e minimum dis (see chapter stance is made or the integer p	tance (in 6). e up with art of the	n millim n the fo e numbe	etres) be llowing f er and oi	etween th our para ne for the	ne upper e meters for decimal p	dge the part)
	Sign setting:									
	BLACK MAF	 + ^D = positive distance - = negative distance 								
					Setting the digit for tens:					
	BLACK MAF	[mm x 10]	0 ^D 1	2 3	4 5	6 7	8 9			
					Setting the digit for units:					
	BLACK MAF	RK DIS	TANCE	[mm x 1]	0 ^D 1	2 3	4 5	6 7	8 9	



	Setti	Setting the digit for decimals:					
BLACK MARK DISTANCE [mm x 0.1]	0 ^D 1	2 3	4 5	6 7	8 9		
NOTE: For example, to set the black mark distan Black Mark Distance Sign = + Black Mark Distance [mm x 10] Black Mark Distance [mm x 1] Black Mark Distance [mm x .1]	ce to 15 = 1 = 5 = 0	mm, mc	odify the I	paramete	ers as foll		

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5.7 Hexadecimal dump

This function is used for the diagnosis of the characters received from the communications port. Characters are printed as hexadecimal code and the corresponding ASCII code (see below). Each line is preceded by a counter in hexadecimal that indicates the number of bytes received.

During the startup, if you hold down the FEED key, the printer enters the self-test routine and print the setup report. The printer remains in standby until a key is pressed or characters are received through the communication port (Hexadecimal Dump mode). For each character sent, the ticket shows the hexadecimal value and the ASCII codes (if the characters are underlined, the receive buffer is full). Shown below is an example of a Hexadecimal Dump:

	Н	EX	AD	EC	IMAL	DUMP
31	32	33	34	35		12345
39 37	30 38	31 39	32 75	33 69	· · ·	90123 789ui
68	6B	6A	73	64		hkjsd
73 66	64 73	66 64	6B	6A 6B	•••	sdfkj
65	69	6F	79	75	•••	eioyu
6F	72	69	75	77	• • •	oriuw
6£ 77	75 65	72	65 69	72 6F	•••	ouwer werio
72	69	6F	75	77	•••	riouw
6B 64	6C 66	73 6b	64 73	66 64	• • •	klsdf dfksd
73	64	66	6B	6A		sdfkj
66 (7	6B	F2	6A	73	•••	fk≥j
Aơ	øВ	60	68			JKIN





6 ALIGNMENT

The device is provided with a sensor for the use of alignment black mark in order to handle rolls of tickets with pre-printed fields and a fixed length.

The alignment sensor is a "reflection" sensor: this kind of sensor emits a band of light and detects the quantity of light reflected to it. The presence of the black mark is therefore detected by the amount of light that returns to the sensor, considering that the light is reflected by the white paper and absorbed by the black mark.

To ensure the correct alignment, you must enable the "Black Mark Position" parameter during the setup procedure (see paragraph 5.6).

The following paragraphs show how to correctly set the configuration parameters of device in order to assure the alignment.



6.1 Calibration

The sensor calibration occurs automatically and consists in adjusting the quantity of light emitted to match the degree of whiteness of the paper used and the degree of black of the mark printed on paper.

The device automatically performs the self-calibration during the Setup procedure only if the "Black Mark Position" parameter is set to a value other than "Disabled" (see paragraph 5.6).

When self-calibration starts, the device performs some paper feeds and then it prints the calibration result and the value of the PWM duty-cicle of the alignment sensor driver so that it can be perform an optimal black mark detection:

Autosetting Black Mark: OK PWM Duty Cycle: 85.3%

The "Autosetting Black Mark" parameter indicates the result of the self-calibration procedure; OK will appear if it has been successful, NOT OK will appear if the procedure has failed.

After the printing of the procedure result, the device offers the execution of the function of paper characterization "Characterize Paper" and the change of the "Black Mark Threshold" parameter which represents the detection threshold of the black mark.

Choosing the "Yes" value for the "Characterize Paper" parameter, the device prints a graphic representation (see following figures) of the outgoing voltage of the alignment sensor (expressed as a percentage) and the "Black Mark Threshold" value. This graphic representation is useful to set the most suitable value to assign to the "Black Mark Threshold" parameter and then to better identify the optimal threshold value which takes into account the variations of the signal and the small oscillations around zero.

The following figure shows an example of paper with the non-thermal paper printed with black marks: the outgoing voltage is constant while passing the white paper between two black marks and presents a peak at each black mark. In this case, the optimal value for the "Black Mark Threshold" parameter is placed about half of the peak.





The following figure shows an example of paper with the non-thermal paper printed with black marks and other graphics (for example, a barcode): the outgoing voltage is constant while passing the white paper between two black marks, presents a peak at each black mark and presents some "noise" at each barcode. In this case, the optimal value for the "Black Mark Threshold" parameter is located about halfway between the peak value and the maximum value of the "noise".



If the maximum value of "noise" read by the sensor is very close to the peak value, it might be difficult to place the value of the "Black Mark Threshold" at an intermediate point. In these cases, it is mandatory that the portion of paper between the point of printing end and the front black mark is completely white (no graphics). In this way, the only next graphic detected by the sensor for alignment after the printing end will be the black mark.



6.2 Alignment parameters

The "alignment point" is defined as the position inside the ticket to use for the black mark alignment. The distance between the black mark edge and the alignment point is defined as "Black Mark Distance".

Referring to the front of the black mark, the value of "Black Mark Distance" varies from -19.9 mm minimum and +99.9 mm maximum.

If the "Black Mark Distance" value is set to 0, the alignment point is set at the beginning of the black mark.



The following figure shows an example of paper with alignment point set by a positive value of "Black Mark Distance" ("Black Mark Distance" = + A):





To set a negative value of the "Black Mark Distance" parameter is useful in cases where the alignment point refers to the black mark printed on the previous ticket or where the desired cutting line is placed in the middle of the alignment black mark. In the following images, the value of "Black Mark Distance" parameter is set to -A.



The following figure shows a section of the device with the paper path and the distances between the alignment sensor, the printing head and the autocutter (cutting line), where:

A = distance between the alignment sensor and the printing line = 12 mm

B = distance between the printing line and the cutting line = 12.5 mm



To define the alignment point you need to set the printer parameters that compose the numerical value of the "Black Mark Distance" parameter. (see paragraph 5.6). For example, to set a black mark distance of 15 mm between the black mark and the alignment point, the parameters must

be set on the following values:

: +
: 1
: 5
: 0

The "Black Mark Distance" parameter, may be modified as described in chapter 5.





6.3 Printing area

In order to print ticket containing only one black mark and to not overlay printing to a black mark (that will make it useless for the next alignment), it is important to well calibrate the length of the printing area of ticket according to the inter-black mark distance.

The following figure shows an example of tickets with "Black Mark Distance" set to 0:



- A "Non-printable area" = "Distance between autocutter/printing head"
- H Distance between the first and the last print line, called "Height of the printing area".
- L Distance between an edge of the black mark and the next one, called "Inter-black mark distance".
- D Automatic feed for alignment at the next black mark.

To use all the black marks on the paper, you must comply with the following equation:

H + A ≤ L

The height of the printing area H can be increased to make no progress on alignment D but no further.



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7 MAINTENANCE

7.1 Paper jam





7.2 Planning of cleaning operations

The regular cleaning of the device keeps the print quality and extends its life. The following table shows the recommended planning for the cleaning operations. If you use the device in dusty environments, you must reduce the intervals between the cleaning operations.

For specific procedures, see the following pages.

EVERY PAPER CHANGE	
Platen roller	Use isopropyl alcohol
EVERY 5 PAPER CHANGES	
Paper path	Use compressed air or tweezers
Autocutter	Use compressed air
Sensors	Use compressed air
EVERY 6 MONTHS OR AS NEEDED	
Chassis	Use compressed air or a soft cloth

7.3 Cleaning

For periodic cleaning of the device, see the instructions below.

Platen roller

1 Disconnect the power supply cable and open the device (see paragraph 4.1). 2 . Ø ISOPROPYL ALCOHOL ATTENTION: Do not use solvents, or hard brushes. Do not let water or other liquids get inside the device.

Clean the platen roller by using a non-abrasive cloth moistened with isopropyl.

<u>Autocutter</u>





Paper path



accumulated paper dust on the platen roller and in areas near to the paper presence sensor.



Remove any scraps of paper and the accumulated paper dust under the inspection door and on the paper output.

<u>Sensors</u>



ATTENTION: Do not use alcohol, solvents, or hard brushes. Do not let water or other liquids get inside the machine.



Clean the anti-jamming sensor by using compressed air.

3 \square AIR ог CON ATTENTION: Do not use alcohol, solvents, or hard brushes. Do not let water or other liquids get inside the machine.

Clean the low paper sensor by using compressed air.



<u>Chassis</u>





To clean the device, use compressed air or a soft cloth.



7.4 Firmware upgrade

Firmware upgrade can be performed by using the "PrinterSet" software tool available on <u>www.custom4u.it</u>. To upgrade firmware, proceed as follows:







Click on LOAD > FROM DEVICE and select the device connected to the PC.



ATTENTION:

4

5

During saving, it is strongly discouraged to disconnect the communication cable or to remove the power supply of the PC or the device.



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8 SPECIFICATION

8.1 Hardware specifications

GENERAL	
Sensors	Paper input and alignment black mark presence, head temperature, paper jam, inspection door open, early withdrawal of the ticket, external low paper (on paper roll holder)
Emulations	TGH, CUSTOM/POS
Printing driver	Windows XP Windows VISTA (32/64 bit) Windows 7 (32/64 bit) Windows 8 (32/64 bit) Windows 8.1 (32/64 bit) Windows 10 (32/64 bit) Self-installing driver for Virtual COM (32/64 bit) Linux (32/64 bit)
INTERFACES	
RS232 serial connector	from 9600 bps to 115200 bps
USB connector	12 Mbit/s
MEMORIES	
Receive buffer	8 kB
Flash memory	1 MB internal + 4 MB external
RAM memory	256 kB internal
Graphic memory	2 logos (608 x 430 dots)
PRINTER	
Resolution	203 dpi (8 dot/mm)
Printing method	Thermal, fixed head
Head life (1)	
Abrasion resistance (2)	200 km (with recommended paper)
Pulse durability	100 M (12.5% duty cycle)



Printing width	76 mm, 80 mm
Printing mode	Normal, 90°, 180°, 270°
Printing format	Height/width from 1 to 8, bold, reverse, underlined, italic
Character fonts	55 character code tables (see paragraph 8.6) Extended chinese GB18030-2000 Korean CP949
Printable barcode	UPC-A, UPC-E, EAN13, EAN8, CODE39, ITF, CODABAR, CODE93, CODE128, CODE32, QRCODE, DATAMATRIX
Printing speed ^{(1) (3)}	Normal = 95 mm/s High Speed = 120 mm/s
PAPER	
Type of paper	Thermal rolls, heat-sensitive side on outside of roll
Paper width	from 76 mm ± 0.5 mm to 80 mm ± 0.5 mm
Paper weight	from 55 g/m ² to 80 g/m ²
Paper thickness	60 μm ± 0.5 μm (for 55 g/m² paper) 85 μm ± 0.6 μm (for 80 g/m² paper)
Recommended types of paper	KANZAN KF50 o KP460 MITSUBISHI PF5067 o TL4000
External roll diameter	max 90 mm
Paper end	Not attached to roll core
Internal roll core diameter	25 mm
Core type	Cardboard or plastic
Minimum ticket length	87 mm
AUTOCUTTER	
Paper cut	Total cut
Estimated life (1)	1000000 cuts

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DEVICE	ELECTRICAL	SPECIFICATIONS
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Power supply	24 Vdc ± 10%			
Medium consumption (4)	2.2 A max			
Typical consumption ⁽³⁾	0.88 A			
Standby consumption	0.04 A			
ELECTRICAL SPECIFICATIONS POWER SUPPLY code 963GE020000053 (optional)				
Power supply voltage	from 100 Vac to 240 Vac			
Frequency	from 50 Hz to 60 Hz			
Output	24 V, 2.5 A			
Power	60 W			
ENVIRONMENTAL CONDITIONS				
Operating temperature	from -20°C to +70 °C			
Relative humidity (RH)	from 10% to 85% (without condensation)			
Storage temperature	from -20 °C to +70 °C			
Storage relative humidity (RH)	from 10% to 90% (without condensation)			

NOTES:

- (1) : Respecting the regular schedule of cleaning for the device components.
- (2) : Damages caused by scratches, ESD and electromigration are excluded.
- (3) : Referred to a standard CUSTOM receipt (L = 10 cm, Density = 12.5% dots on).
- (4): Referred to the UL measurements (Ticket 12.5% dots on, Ticket length 10 cm, Print density +50%, Printing loop 30 s).

8.2 Character specifications

Character set	3		
Character density	11 cpi	15 cpi	20 cpi
Number of columns	35	49	64
Chars / seconds	1400	1960	2560
Lines / seconds	40	40	40
Characters (L x H mm) - Normal	2.25 x 3	1.625 x 3	1.25 x 3

NOTE:

Theoretical values.

8.3 Device dimensions

Length	271.5 mm
Height	102 mm
Width	130.2 mm
Weight	1130 g

Data refer to device with paper roll holder assembled in the rear position (see paragraph 3.2). All the dimensions shown in following figure are in millimetres.







8.4 Power supply, power cord and adapter for power supply dimensions (optionals)

The following table shows the dimensions of the power supply, the power cord and the adapter for power supply optionals for the device:

POWER CORD code 2610000000311	
Length	2000 mm
ADAPTER FOR POWER SUPPLY code 2690000000005	
Length	200 mm
POWER SUPPLY code 963GE020000053	
Length	127 mm
Height	35.5 mm
Width	56 mm

All the dimensions shown in following figures are in millimetres.

POWER CORD code 2610000000311





ADAPTER FOR POWER SUPPLY code 2690000000005



POWER SUPPLY code 963GE020000053



GND +24V

8.5 Paper specification

The following image shows an example of black mark placement on the non-thermal side of paper. All the dimensions shown in the following figure are in millimetres.




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8.6 Character sets

The device has 3 fonts of varying width (11, 15 and 20 cpi) which may be related one of the coding tables provided on the device.

To know the coding tables actually present on the device, you need to print the font test (see paragraph 2.4).

You can set font and coding table by using the commands (see the commands manual of the device) or using the "Code Table" and the "Chars / Inch" parameters during the setup procedure (see paragraph 5.5).

The following is the full list of coding tables that can be installed on the device.

<codetable></codetable>	(Coding table	
0	PC437 - U.S.A., Standard Europe		
1	Katakana		
2	PC850 - Multilingual		
3	PC860 - Portuguese		
4	PC863 - Canadian/French		
5	PC865 - Nordic		
6	VISCII - Vietnamese Standard Code		
11	PC851 - Greek		on request
12	PC853 - Turkish		on request
13	PC857 - Turkish		
14	PC737 - Greek		
15	ISO8859-7 - Greek		on request
16	WPC1252 - Scandinavian		
17	PC866 - Cyrillic 2		
18	PC852 - Latin 2		
19	PC858 for Euro symbol in position 213		
20	FKU42 - Thai		
21	TIS11 - Thai		on request
26	TIS18 - Thai		on request
30	TCVN_3 - Vietnamese		on request
31	TCVN_3 - Vietnamese		on request
32	PC720 - Arabic		on request
33	WPC775 - Baltic Rim		on request

<codetable></codetable>		Coding table	
34	PC855 - Cyrillic		
35	PC861 - Icelandic		on request
36	PC862 - Hebrew		
37	PC864 - Arabic		
38	PC869 - Greek		on request
39	ISO8859-2 - Latin 2		on request
40	ISO8859-15 - Latin 9		on request
41	PC1098 - Farsi		
42	PC1118 - Lithuanian		on request
43	PC1119 - Lithuanian		on request
44	PC1125 - Ukrainian		
45	WPC1250 - Latin 2		
46	WPC1251 - Cyrillic		
47	WPC1253 - Greek		
48	WPC1254 - Turkish		
49	WPC1255 - Hebrew		
50	WPC1256 - Arabic		
51	WPC1257 - Baltic Rim		
52	WPC1258 - Vietnamese		
53	KZ1048 - Kazakh		on request
255	Space page		



9 CONSUMABLES

The following table shows the list of available consumables for device:

DESCRIPTION

CODE

6730000000406

THERMAL PAPER ROLL

width = 80 mm \emptyset external = 90 mm \emptyset core = 25 mm







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10 ACCESSORIES

The following table shows the list of available accessories for device:







11 TECHNICAL SERVICE

In case of failure, contact the technical service accessing the website <u>www.custom4u.it</u> and using the support tools on the homepage. It is advisable to keep the identification data of the product at hand.

The product code, the serial number and the hardware release number can be found on the product label (see paragraph 2.3). The firmware release number (SCODE) can be found:

- on the setup report (see paragraph 5.1)
- connecting the device to a PC and starting the "PrinterSet" tool (see paragraph 5.2)

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